IRE members of this Committee to keep in contact with the IRE and AIEE activities. This Joint Committee has already sponsored two conferences.

The IRE maintains liaison with ASA Sectional Committees. During the year several IRE members were appointed to represent the Institute on various ASA Committees. The Office of the Technical Secretary is alert to the importance of maintaining adequate liaison with these committees.

Professional Group System. There are ten Professional Groups presently in existence in the following fields: Antennas and Propagation, Audio, Broadcast and Television Receivers, Broadcast Transmission Systems, Circuit Theory, Instrumentation, Nuclear Science, Quality Control, Radio Telemetry and Remote Control, and Vehicular Communications. The total membership is in excess of 8,500, and is increasing steadily. It is anticipated that a petition to form the 11th IRE Professional Group on Airborne Electronics will be approved by the Executive Committee. An example of the growth of the Professional Group System is evidenced by the fact that at the 1950 National Convention, five groups sponsored Symposia, while all of the Groups sponsored symposia at the 1951 National Convention. Each group was represented on the Technical Program Committee for the Convention.

IRE Sections are constantly informed of the activities of the Groups through the media of newsletters, conference notices and minutes from the office of the Technical Secretary. Steps are being taken in the various Sections towards the stimulation of Group activities. As a result of membership drives, many new members have been enrolled in IRE. During the year a number of Groups sponsored joint symposia, national meetings and technical sessions. All Groups are interested in securing papers for publication in the PROCEEDINGS. The Professional Group Manual was revised in June 1950.

The Joint Technical Advisory Committee. There were 11 meetings during the year. Members of the JTAC attended demonstrations given by CBS and the Hazeltine Electronics Corporation of various matters within their fields of interest. Volume V, Adjacent-Channel Interference In Monochrome Television, was published and submitted with a letter to the Federal Communications Commission; Volume VI, (correspondence and minutes) was authorized and work commenced; the publication of a supplement to Volume IV, Comments On The Proposed Allocation of Television Broadcast Services, was prepared. A 'Supplemental Statement' prepared for the FCC in connection with Volume IV was formally presented in evidence before the Commission. The membership was appointed for the year July 1, 1950 to June 30, 1951, and J. V. L. Hogan was unanimously elected Chairman. Melville Eastham and E. K. Jett were unable to continue their duties with JTAC, and were succeeded by I. J. Kaar and T. T. Goldsmith. Several reports from technical associations and industry have been circulated for comment, and reports on current topics exchanged with other technical bodies, such as the BBC.

Section Activities

We were glad to welcome four new Sections into the Institute during the past year. They are as follows:

Evansville-Owensboro	(March) 1950
Hawaii	(February) 1950
Miami	(February) 1950
Vancouver	(September) 1950

The total number of Sections is now 57. There has been a substantial increase in membership of these Sections with a few exceptions. It should be borne in mind that most Sections with noticeable decreases in membership released substantial numbers of members to new Sections.

The Subsections of Sections now total 12, the following being formed in 1950:

Binghamton (Syracuse Section)
May, 1950
Mid-Hudson (New York Section)
November, 1950

Student Branches

The Institute's program with respect to Student Branches continued to flourish in 1950. The number of Student Branches formed during 1950 was 17, 14 of which operate as joint IRE/AIEE Branches. The total number of Student Branches is now 105, 60 of which operate as joint IRE/AIEE Branches. This increase of Student interest was accompanied by a large increase in Student members.

Following is a list of the Student Branches formed during 1950:

University of Akron, University of British Columbia, Polytechnic Institute of Brooklyn, Bucknell University, University of Connecticut, Cooper Union, University of Denver, Drexel Institute of Technology, Louisiana State University, University of Miami, Michigan College of Mining and Technology, New Mexico College of Agriculture and Mechanic Arts, Oklahoma Agricultural and Mechanical College, Rensselaer Polytechnic Institute, Stevens Institute of Technology, and University of Toronto.

Books

Radio Laboratory Handbook, Fifth Edition by M. G. Scroggie

Published (1950) by Iliffe & Sons, Ltd., Dorset House, Stamford Street, London S.E. 1, England. 409 pages+5-page index+14-page appendix. 215 figures. 7×4½. 15s.

This is one of a series of radio books issued by the magazine *Wireless World*, the first of which appeared in 1938. The present fifth edition of this work, published in 1950, has been thoroughly brought up to date.

It is not a textbook on radio theory, but, as its name indicates, a reference book of material useful for workers in radio, designed to be useful both to the amateur enthusiast and to the professional radio engineer.

The material treated is grouped under the main headings of sources of power and signals, indicators, standards, laboratory equipment in general, measurements of resistance, inductance and capacitance, and tests of amplifiers and receivers. A new chapter is added on very-high-frequency work, with special reference to its relation to lower-frequency procedures. A reference chapter compiling useful fundamental formulas and numerical constants is a convenient feature.

With such a wide coverage of subject matter, exhaustive treatment of any subject is, of course, out of the question. A practical working knowledge of fundamental circuit theory and of elementary vacuum-tube functions on the part of the reader is assumed. Working diagrams of special circuits and arrangements are clearly given and discussed, but for further study by those interested, reference is given to the original published articles.

Space is given to sensible practical advice on the organization of an experimental laboratory, the choice of necessary apparatus, and instructions for the building of certain devices for measurement.

The style of presentation is, throughout, easy and pleasing, the choice of type size is good, and, in spite of the fact that the volume is of pocket size, the diagrams and illustrations do not suffer.

The amateur should find this a most helpful guide, and the professional engineer a handy and comprehensive reference book.

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TV Master Antenna Systems, by Ira Kamen and Richard H. Dorf.

Published (1951) by John F. Rider Publishers, Inc., 480 Canal St., New York 13, N. Y. 352 pages+4-page index+vii pages. 234 figures. 5½×8½. $5.00.

This book was designed to be a working manual for many kinds of organizations and people concerned with master-television systems. The authors have succeeded to a remarkable degree in satisfying technical completeness and yet insuring the layman's comprehension by treating problems and their solutions. Although primarily pre-

sented for those whose interests are in manufacture, sales, installation, maintenance, and use, this is also a tutorial work of interest to radio engineers.

The reader is introduced to the subject by a discussion of basic television antenna systems. Descriptions of four nonamplified and ten amplified master-antenna systems follow. All but two of the systems discussed are replete with circuit diagrams giving component values. The two exceptions, Lynmar and Multitenna, give the dubious and provocative excuse that for "patent reasons" the information is not available. The authors may be commended for their adequate presentation in the absence of co-operation from these manufacturers.

The table of contents and the index appear to be ample for a work of this kind. The information is clearly presented in an easily readable manner. The book also covers video distribution systems, and provides an appendix with landlord agreement, survey report, and tenant letter forms.

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Radiation Monitoring in Atomic Defense by Dwight E. Gray and John H. Martens

Published (1951) by D. Van Nostrand Co., Inc., 250 Fourth Ave., New York, N. Y. 111 pages+2-page index+19-page appendix+iv pages. 20 figures. 5½×8. $2.00.

Were the title of this little book to read simply "Radiation Monitoring," the reviewer would commend both the authors and the publishers for producing a manual useful to the uninitiated who are confronted with the problem of monitoring the radioactive hazard of a laboratory, an X-ray installation, or a similar radiation source. But the title contains the additional words "In Atomic Defense." Herein lies the fault—not in the construction of the book, but in its objective.

By aiming their book specifically at civil defense, the authors tend to dignify the status of the radiation hazard attending an atomic bomb explosion. In this respect they are not to blame, for they are merely "following the party line" established by the many medical men who have been responsible for civil defense planning. By and large, defense planners have gotten the radioactive menace of the atomic bomb completely out of focus, until it has assumed proportions overshadowing the more important blast and fire hazards of the new weapon. Many local communities have set up civil defense plans patterned to a radiological monitoring procedure which is not only disproportionate to the hazard, but may actually be dangerous to the overall uccess of civil defense. Apparently the thought has been that if you have a Geiger counter, you have the panacea for atomic defense.

Atomic bombs are normally exploded above the surface of the earth in order to achieve maximum effectiveness. American experience with 12 A-bombs so exploded shows conclusively that with an above-surface burst the residual radiation hazard is very small, and negligible with a high air burst. The very violence of the atomic explosion sweeps all the radioactive fragments upward and sucks them into the stratosphere, where they disperse harmlessly.

If one thinks of the book purely as a manual for radiation monitoring without reference to atomic disaster, then one is quite favorably impressed that the writers have done a creditable job. Treating the subject in two parts, they first lay out the fundamentals of atomic energy and nuclear radiation. Then they point their remarks at individual instruments (cookbook fashion as they, themselves, admit), and describe how the basic types of Geiger counter, ion chambers, and similar instruments should be used. As a matter of style, the reviewer wishes that they had been consistent in using the capitalized form of Geiger counter; they use both, but mainly the "geiger" form appears in the text.

Factually, the book appears to be quite accurate with only occasional errata cropping up. For example, the authors state: "radiation remains a serious cause of injury at distances up to 1½ to 2 miles from ground zero." This is a misinterpretation of data published by the Atomic Energy Commission, and the figures should read "up to 1 mile from ground zero."

Both the authors are on the staff of the Atomic Energy Commission. This very fact will add weight to the "official nature" of the publication. It also tends to explain the nature of the book, for there are a number of AEC officials who have been responsible for the delusion that the Geiger counter is the "open sesame" to the realms of civil defense.

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Industrial Instrumentation by Donald P. Eckman

Published (1950) by John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, N. Y. 353 pages+9-page index+31-page appendix+vi pages. 247 figures. 5½×8½. $5.00.

This up-to-date textbook on industrial instrumentation is intended for the undergraduate student in engineering. The author assumes that the student has an acquaintance with the elements of calculus, mechanics, and thermodynamics, as well as a general course in physics.

As an introduction to the body of the text, the initial chapter covers the qualities of measurements, defines terms, and discusses the response of first- and second-order physical systems. Approximately one third of the text is devoted to temperature measurements (4 chapters). Then a chapter each is devoted to composition analysis, mechanical measurements, pressure and vacuum measurements, head and liquid level, and flowmetering. The final chapter is devoted to process instrumentation.

In general, the various types of measuring instruments are adequately discussed. Since the description is supplemented by a discussion of the basis for the measurement, some of the limitations, as well as the range of the usually available industrial instruments, are included. For many types of instruments, e.g., potentiometers and optical pyrometers, the various forms made by different instrument manufacturers are discussed.

However, because of the large number of different types of instruments discussed, there are only brief comments on many forms, such as emission spectroscopy and mass spectroscopy.

Among some of the errors noted is the implication that a second-order system composed only of resistance and condensors will oscillate when a unit step function impulse is applied. Another is the statement that the volume change of a gas due to change in temperature is relatively small. Actually, the quantity involved is the pressure developed by an enclosed fluid.

However, these errors should not detract from the usefulness of the book as a text for the undergraduate. The material is easily readable. Numerous good illustrations and the many examples which have been worked out should give the student a clear picture of the field of industrial instrumentation. The sets of problems at the end of each chapter and the many tables in the appendix should also prove helpful. In general, very little mathematics is needed, since most of the equations are stated rather than derived, and the application of these equations, which is well illustrated, is not difficult.

Thus the book fulfills the undergraduate engineering student's need for a textbook in industrial instrumentation. It may also prove useful to some engineers who are in daily contact with instruments, but who need only a precursory knowledge of the fundamental principles of their operation.

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The Principles of Cloud-Chamber Techniques by J. G. Wilson

Published (1951) by the Cambridge University Press, 51 Madison Ave., New York 10, N. Y. 127 pages+2-page index+2-page references+viii pages. 33 figures. 5½×8½. $2.75.

One of the Cambridge Monographs on Physics, this book is addressed to nuclear physicists who use or plan to use cloud chambers, or who may find an account of the cloud chamber as an instrument of precise measurement helpful.

The purpose of the cloud chamber is to study the motion of ionizing particles from photographs of the drops condensed on ions formed along particle trajectories. The early chapters of the monograph deal with the condensation process, ionization, and the general problems of the establishment of supersaturation and its persistence, on which the technique depends. Arrangements for photographing are then discussed and methods of measurement are described in detail, with particular reference to cosmic-ray investigations. A final chapter deals with the interpretation of photographs, a topic of increasing importance. Detailed specifications for the construction of cloud chambers are not included, but the advantages and disadvantages of various constructional materials are assessed in the light of experience.

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